

# TR-500EX

Left hand steering

## GENERAL DATA

CRANE CAPACITY		50,000 kg at 3.5 m
BOOM	4-section,	10.7 m — 34.1 m
<b>DIMENSIONS</b>		
Overall length	approx.	13,570 mm
Overall width	approx.	3,315 mm
Overall height	approx.	3,800 mm
<b>WEIGHTS</b>		
Gross vehicle weight	approx.	43,100 kg
- front axle	approx.	22,260 kg
- rear axle	approx.	20,840 kg
<b>PERFORMANCE</b>		
Max. travelling speed	computed	35 km/h
Gradeability(tan $\theta$ )	computed	100 % (at stall)

## CRANE SPECIFICATIONS

**MODEL**  
TR-500EX

**CAPACITY**  
50,000 kg at 3.5 m

**BOOM**  
4-section full length power synchronized telescoping boom of hexagonal box construction with 5 sheaves at boom head. Hydraulic cylinders fitted with holding valves.  
Fully retracted length ..... 10.7 m  
Fully extended length ..... 34.1 m  
Extension speed ..... 23.4 m in 130 s

**JIB**  
2-staged swingaround boom extension. Dual offset(5° / 30°)type. Box type top section telescopes from lattice type base section which stores alongside base boom section.  
Single sheave at jib head.  
Length ..... 9.8 m and 17.1 m

**SINGLE TOP (AUXILIARY BOOM SHEAVE)**  
Single sheave. Mounted to main boom head for single line work.

**ELEVATION**  
By 2 double-acting hydraulic cylinders, fitted with holding valve.  
Elevation speed ..... -3° to 80° in 77 s

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## HOIST—Main winch

2-speed type with grooved drum driven by hydraulic axial piston motor through winch speed reducer. Power load lowering and hoisting.

Equipped with automatic fail-safe brake with free-fall device by foot brake operation and counterbalance valve.

Controlled independently of auxiliary winch.

Single line pull . . . . . 5,200 kg

Single line speed

High range . . . . . 140 m/min. (at the 4th layer)

Normal range . . . . . 70 m/min. (at the 4th layer)

Wire rope . . . . . Spin-resistant type

Diameter x length . . . 20 mm x 190 m

## HOOK BLOCK—50 ton capacity

5 sheaves, swivel type hook with safety latch.

## HOIST—Auxiliary winch

Grooved drum driven by hydraulic axial piston motor through winch speed reducer. Power load lowering and hoisting.

Equipped with automatic fail-safe brake with free-fall device by foot brake operation and counterbalance valve.

Controlled independently of main winch.

Single line pull . . . . . 5,600 kg

Single line speed . . . . 120 m/min (at the 2nd layer)

Wire rope . . . . . Spin-resistant type

Diameter x length . . . 20 mm x 110 m

## HOOK BLOCK—5.6 ton capacity

Swivel hook with safety latch for single line use.

## SWING

Hydraulic axial piston motor driven through planetary swing speed reducer. Continuous 360° full circle swing on ball bearing slew ring.

Equipped with hand-operated swing brake.

Swing speed . . . . . 2.2 rpm

## HYDRAULIC SYSTEM

Pumps . . . . . 2 variable piston pumps and one gear pump for crane.

Tandem gear pump for steering and optional equipments.

Control valves . . . . . Multiple valves actuated by hand levers with integral pressure relief valves.

Circuit . . . . . Equipped with air cooled type oil cooler. Pressure gauge for main circuit installed in crane cab.

Hydraulic oil tank

capacity . . . . . approx. 740 liters

Filters . . . . . Return line filter

## CAB

Both crane and drive operations can be performed from one cab mounted on rotating superstructure. One sided one-man type ( two-man type optional ), steel construction with sliding door access and safety glass windows opening at sides, and roof.

Operator's 4 way adjustable seat with high back.

## TADANO Automatic Moment Limiter (Model:AML - M)

Main unit in crane cab gives audible and visual warning of approach to overload. Automatically cuts out crane motions before overload. With working range ( working radius and/or boom angle and/or tip height ) limit function. Seven functions are constantly displayed.

Digital liquid crystal display:

Boom angle

Either boom length or potential hook height

Actual working radius

Actual hook load

Permissible load

Jib offset angle (Display changes by button)

Color bar graphical display :

Moment as percentage

## OUTRIGGERS

4 hydraulically operated outriggers. Each outrigger controlled simultaneously or independently from the cab. Equipped with sight level gauge. Floats mounted integrally with the jacks retract to within vehicle width.

All cylinders fitted with pilot check valves.

Extended width . . . . . 7,000 mm

Float size (Diameter) . . . . . 600 mm

## NOTE :

Each crane motion speed is based on unladen conditions.

# CARRIER SPECIFICATIONS

SPEC. SHEET No. TR-500E-2-01202/EX-50

## TYPE

Rear engine, left hand steering, driving axle 2 way selected type (by manual switch).

- 4×2 front drive
- 4×4 front and rear drive

## FRAME

High-tensile steel, all welded box construction.

## ENGINE

Model . . . . . MITSUBISHI 6D22  
Type . . . . . 4 cycle, 6 cylinder in line, direct injection, water cooled diesel engine.  
Piston displacement . . . . 11,149 cc  
Bore × stroke . . . . . 130 mm × 140 mm  
Max. output (JIS) . . . . . 190 PS at 2,300 rpm  
Max. torque (JIS) . . . . . 69 kgm at 1,200 rpm

## TRANSMISSION

Torque converter driving full powershift with driving axle selector.  
3 speeds-High range-2 wheel drive  
3 speeds-Low range-4 wheel drive

## AXLES

Front . . . . . Full floating type, steering and driving axle with planetary reduction.  
Rear . . . . . Full floating type, steering and driving axle with planetary reduction.  
Non-spin differential.

## STEERING

Hydraulic power steering controlled by steering wheel.  
Three steering modes available:  
2-wheel front  
4-wheel coordinated  
4-wheel crab

## SUSPENSION

Front . . . . . Rigid mounted to the frame.  
Rear . . . . . Pivot mounted with hydraulic lockout cylinders.

## BRAKE SYSTEM

Service . . . . Air over hydraulic disc brakes on all 4 wheels.  
Parking . . . . Spring operated air released brake acting on input shaft of front axle.

## ELECTRIC SYSTEM

24 V DC. 2 batteries of 12 V-150 Ah capacity.

## FUEL TANK CAPACITY

250 liters

## TIRES

Front . . . . . 29.5-25-22 PR(OR), Single × 2  
Rear . . . . . 29.5-25-22 PR(OR), Single × 2

## TURN RADIUS

Min. turning radius(at center of extreme outer tire)  
2-wheel steering . . . . . 11.5 m  
4-wheel steering . . . . . 6.5 m

# EQUIPMENTS

## STANDARD EQUIPMENTS

Automatic moment limiter (AML-M)  
External lamp (AML)  
Pendant type over-winding cutout  
Winch automatic fail-safe brake  
Winch drum lock  
Winch drum indicator  
Cable follower  
Hook safety latch  
Pilot check valves  
Holding valves  
Counterbalance valves  
Hydraulic pressure relief valves  
Swing brake  
Swing lock  
Load follower control button  
Boom angle indicator  
Boom elevation foot pedal  
Sight level gauge  
Hydraulic oil cooler  
Electric windshield wiper and washer  
Roof windshield wiper  
Tachometer / Speedometer

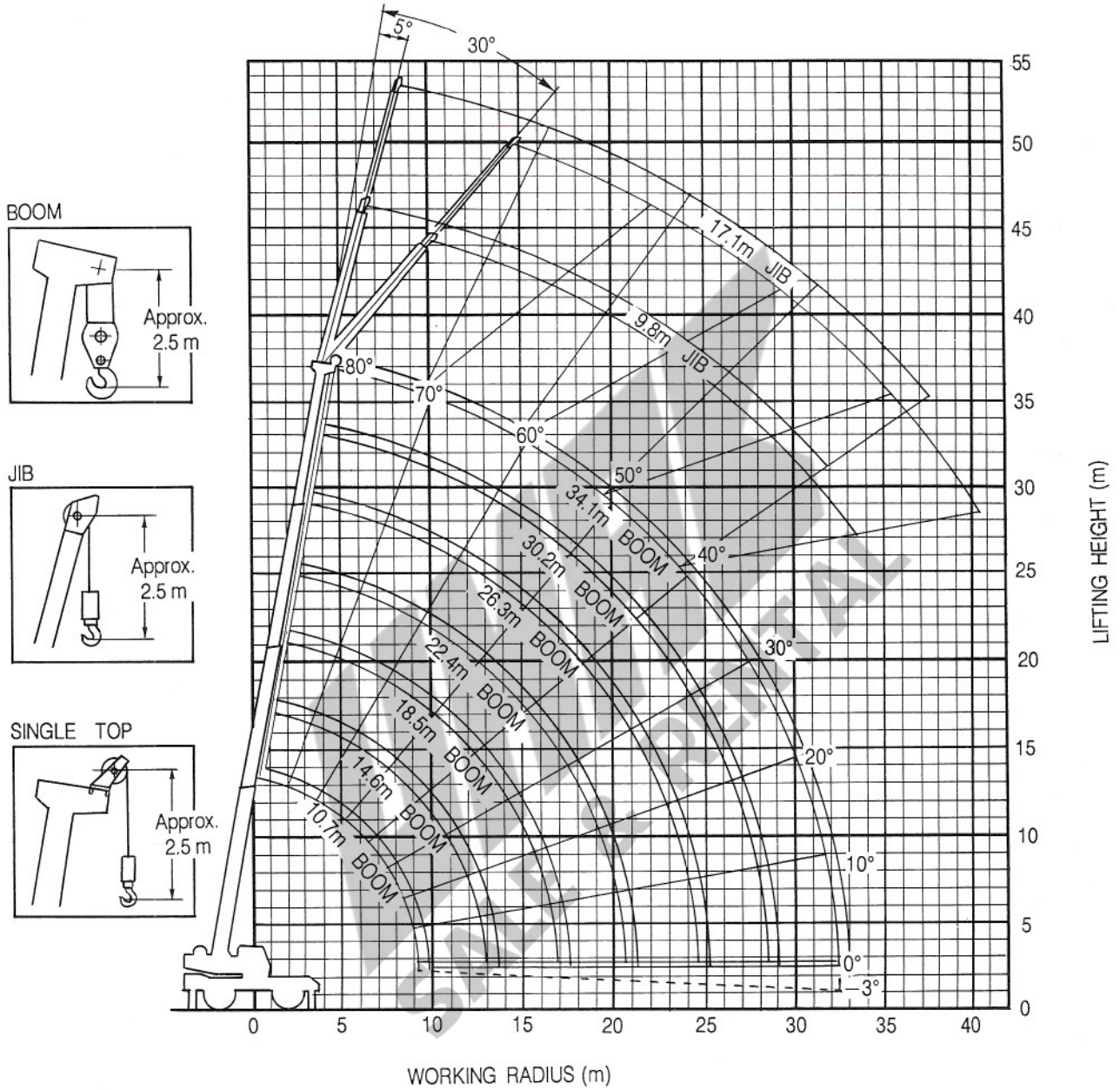
Cab floor mats  
Sun visor (Roof)  
Transmission neutral position start  
Parking braked travel warning  
Emergency steering  
Back-up alarm  
Air cleaner dust indicator  
Air dryer  
Water separator with filter  
Engine over-run alarm  
Hydraulic lockout suspension  
Non-spin differential (Rear)  
Towing eyes – front and rear

## OPTIONAL EQUIPMENTS

Backseat  
Seat belt (Driver's seat)  
AM radio  
Electric fan  
Cab heater and defroster (Diesel engine fuel oil)  
Tire inflation kit

# WORKING RADIUS - LIFTING HEIGHT

SPEC. SHEET No. TR-500E-2-01202/EX-50



## NOTE:

The above lifting heights and boom angles are based on a straight (unladen) boom, and allowance should be made for boom deflection obtained under laden conditions.

# TOTAL RATED LOADS

SPEC. SHEET No. TR-500E-2-01202/EX-50

## ON OUTRIGGERS

Unit : kg

		Outriggers fully extended (360°)											
B	A	10.7m	14.6m	18.5m	22.4m	26.3m	30.2m	34.1m	E	9.8m		17.1m	
										C	D	5°	30°
3.0m	50,000	40,000	36,500						80°	5,600	2,800	2,800	1,100
3.5m	50,000	40,000	34,800						75°	5,000	2,500	2,300	1,000
4.0m	48,000	40,000	33,200	25,000					70°	4,000	2,300	1,900	900
4.5m	42,600	39,000	31,700	24,000					65°	3,200	2,150	1,600	850
5.0m	38,200	37,500	30,400	22,900	20,500				60°	2,600	2,000	1,400	800
5.5m	34,600	34,800	29,200	21,900	19,500				55°	2,150	1,750	1,200	750
6.0m	31,500	31,800	28,100	20,800	18,500	17,000			50°	1,650	1,500	1,050	700
6.5m	28,900	29,200	27,100	19,800	17,400	16,100			45°	1,100	1,000	800	650
7.0m	26,600	26,900	26,200	18,800	16,400	15,300	14,000		40°	750	700	600	500
8.0m	21,100	21,100	21,100	17,200	14,600	13,800	12,600						
9.0m	16,400	17,000	17,000	15,900	13,200	12,500	11,500						
10.0m		14,000	14,000	14,100	12,000	11,400	10,400						
11.0m		11,700	11,800	11,900	11,000	10,300	9,500						
12.0m		9,900	10,100	10,200	10,100	9,500	8,700						
13.0m		8,500	8,700	8,800	8,800	8,700	8,000						
14.0m			7,600	7,700	7,700	7,800	7,400						
15.0m			6,600	6,700	6,800	6,900	6,800						
16.0m			5,800	5,900	6,000	6,100	6,100						
17.0m				5,200	5,300	5,400	5,400						
18.0m				4,700	4,700	4,800	4,800						
19.0m				4,200	4,200	4,300	4,300						
20.0m				3,800	3,800	3,900	3,900						
22.0m					3,000	3,100	3,100						
24.0m					2,400	2,500	2,500						
26.0m						2,000	2,000						
28.0m							1,500	1,600					
30.0m								1,200					
32.0m								900					

- A : Boom length
- B : Working radius
- C : Jib length
- D : Jib offset
- E : Boom angle

### NOTES FOR "ON OUTRIGGERS" TABLE

- Total rated loads shown in the table are based on condition that crane is set on firm level surface. Those above bold lines are based on crane strength and those below, on its stability.
- Total rated loads below bold lines do not exceed 75 % of tipping load.
- The weight of the hook (500 kg for 50 ton capacity, 150 kg for 5.6 ton capacity), slings and all similarly used load handling devices must be added to the weight of the load.

- For total rated load of single top, reduce the 500 kg from the relevant boom total rated load. Total rated load of single top should not exceed 5,600 kg.
- Free-fall operation should be performed without any load on the hook.
- Standard number of part lines for each boom length is as shown below. Load per line should not surpass 5,200 kg for main winch and 5,600 kg for auxiliary winch.

Boom length (m)	10.7	14.6	18.5	22.4	26.3	30.2	34.1	Jib/Single top
No. of part lines	10	8	8	6	4	4	4	1

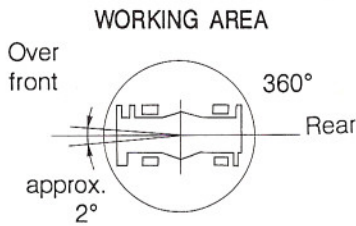
## ON TIRES

Unit : kg

B	A	Stationary						Creep							
		Over front			360°			Over front			360°				
		10.7m	18.5m	26.3m	10.7m	18.5m	26.3m	10.7m	18.5m	26.3m	10.7m	18.5m	26.3m		
3.0m	31,000									23,000					
3.5m	27,500				15,600					21,300			12,900		
4.0m	25,300	16,500			13,200	12,300				19,700	14,700		10,900	10,200	
4.5m	23,500	15,600			11,500	10,600				18,300	13,900		9,100	8,700	
5.0m	22,000	14,800			9,700	9,100				16,900	13,100		7,800	7,500	
5.5m	19,000	14,200	9,400		8,400	8,100	7,400			15,700	12,600	8,300	6,600	6,700	6,200
6.0m	16,500	13,700	9,400	7,200	7,200	6,600	6,600	14,600	12,100	8,300	5,700	5,900	5,900	5,500	
6.5m	14,400	13,200	9,400	6,100	6,500	5,900	5,900	12,800	11,700	8,300	4,900	5,300	4,900		
7.0m	12,500	12,800	9,400	5,300	5,900	5,500	5,500	11,100	11,400	8,300	4,200	4,800	4,800	4,500	
8.0m	9,900	10,700	9,400	3,900	4,700	4,800	4,800	8,800	9,500	8,300	3,100	3,800	4,000		
9.0m	8,000	9,000	8,500	2,800	3,700	4,100	4,100	7,100	8,000	7,500	2,200	2,900	3,400		
10.0m		7,500	7,700		2,900	3,400				6,700	6,800		2,300	2,800	
11.0m		6,300	6,500		2,200	2,700				5,600	5,800		1,800	2,200	
12.0m		5,400	5,600		1,800	2,200				4,800	5,000		1,400	1,800	
13.0m		4,700	4,900		1,400	1,800				4,100	4,300		1,100	1,400	
14.0m		4,100	4,300		1,100	1,500				3,600	3,800		800	1,100	
15.0m		3,500	3,800		900	1,200				3,100	3,400			800	
16.0m		3,000	3,300		700	900				2,700	3,000				
17.0m			2,900			700					2,600				
18.0m			2,600								2,300				
19.0m			2,300								2,000				
20.0m			2,000								1,800				
22.0m			1,600								1,400				
24.0m			1,200								1,000				

A : Boom length      B : Working radius

to be continued.

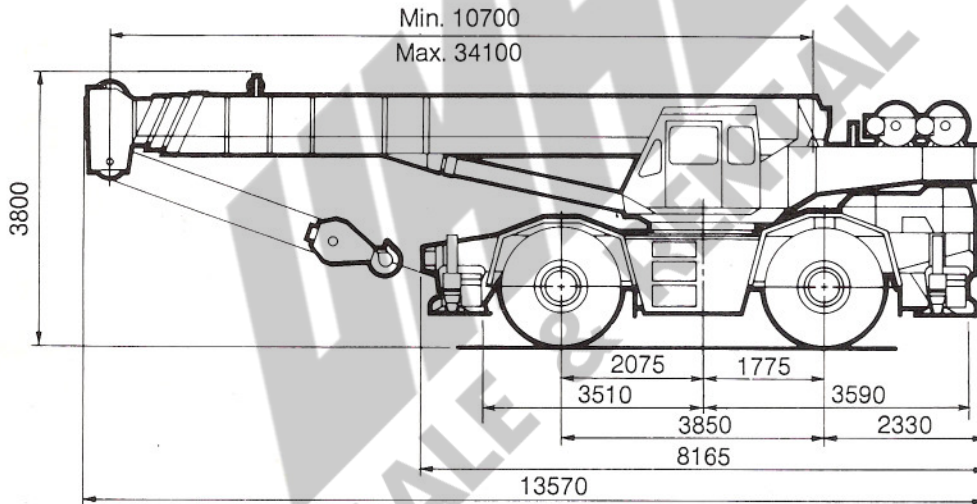


Without outriggers "Over front" operation should be performed within 2 degrees in front of chassis.

### NOTES FOR "ON TIRES" TABLES

- Total rated loads shown in the table are based on condition that crane is set on firm level surface, with axle lockout applied. Those above bold lines are based on tire capacity and those below, on crane stability. They are based on actual working radii increased by tire deformation and boom deflection.
- "STATIONARY" load capacities do not exceed 75 % of tipping loads. "CREEP" load capacities do not exceed 66<sup>2</sup>/<sub>3</sub> % of tipping loads.
- The weight of the hook (500 kg for 50 ton capacity, 150 kg for 5.6 ton capacity), slings and all similarly used load handling devices must be added to the weight of the load.
- For total rated load of single top, reduce the 500 kg from the relevant boom total rated load. Total rated load of single top should not exceed 5,600 kg.
- Without outriggers lifting with "Jib" is not permitted. Maximum permissible boom length is 26.3m.
- Free-fall operation should not be performed without extending outriggers.
- CREEP is motion for crane not to travel more than 60 m in any 30 min. period and to travel at the speed of less than 1.6 km/h.
- During "CREEP" duties travel slowly and keep the lifting load as close to the ground as possible, and especially avoid any abrupt steering, accelerating or braking.
- Do not operate the crane while carrying the load.
- Tires should be inflated to their correct air pressure of 4.2 kg/cm<sup>2</sup>.
- 2nd boom section stays fully retracted (3rd boom section and top boom section able to extend and retract simultaneously).

## DIMENSIONS



Overall width ..... 3,315 mm  
 Tail swing radius ..... 4,140 mm

Tread(track) – Front ..... 2,502 mm  
 – Rear ..... 2,502 mm

Specifications are subject to change without notice.



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